School of MCB Undergraduate Research Information Session

Tina Knox,
Coordinator of Undergraduate Instruction and Advising
February 10, 2020
Agenda

• Special information for biochemistry students
• What is undergraduate research?
• How to find a lab
• How to enroll in MCB 290/BIOC 290
• Faculty perspective
• Student perspective
• Graduation with Distinction
Biochemistry Majors Only

- BIOC 290, independent laboratory research
- BIOC 492, senior thesis
- Contact Jeff Goldberg for template email to use – not necessary to use student profile.
- Forms signed by Jeff Goldberg, flexible deadlines
- Need 6 hrs of research for distinction in biochemistry
- Email Jeff for additional information, jmgoldbe@illinois.edu, Room 417 RAL
What Is Undergraduate Research?

Undergraduate students participate in scientific research, in a university lab, under the direction of a faculty member (P.I.), post-doc or graduate student.

- Earn course credit (MCB 290 or BIOC 290)
  - Earn a grade for their contributions to the lab

- A few paid positions exist
  - Cannot earn money if earning credit
Why Research?

- Experience cutting edge science
- Make connections with faculty
- Develop skills in analytical thinking, communication and team work
- Determine if graduate studies may be a viable post-graduate goal
Why Research?

• Gain intensive practical knowledge using modern technology
• Understand how techniques and procedures discussed in lecture and lab are used in the real world
• Practice *problem solving*
Eligibility for MCB 290/BIOC 290

- Must be a *declared* major in Biology, MCB, MCB Honors or Biochem
- Conduct research in an *approved* laboratory at UIUC
- Good academic standing, recommended GPA of 3.0 or higher
- Cannot receive monetary payment, or any other form of academic credit, based on the research for which MCB 290 or BIOC 290 credit is earned.
- Must enroll in the course by the university deadline to add a semester course using the appropriate forms.

http://mcb.illinois.edu/undergrad/opportunities/research/
Typical Workload

• 1 credit MCB 290 = approximately 5 hrs/week in lab/16-weeks (8-week summer sessions, 1 credit = 10 hrs/week)

• Keep in mind this is an average. You need to plan to stay until your work is done.

• Make sure you have a clear understanding of the faculty expectations for credit and how your grade will be assessed.
Limits?

• A limit of 10 credit hours of MCB 290/BIOC 290 can be applied towards the 120 hours needed for graduation.

• However, you are encouraged to continue your research for as many terms as you wish.

• All MCB 290/BIOC 290 semesters and the assigned letter grades will appear on your transcript and count in your GPA.
How to Find a Lab

1. Review information on MCB websites
2. Read about faculty and their research interests
3. Make a list of faculty with whom you want to work
4. Create an online student profile
5. Contact faculty via email
   a) Be professional and concise
   b) Follow up, if necessary
How to Find a Lab

1. Review information on MCB websites
   mcb.Illinois.edu/undergrad/opportunities/research/

   Opportunities

   Undergraduate Research in MCB

   Forms | Student Profile Database | Workshop Video
   MCB 290 Undergraduate Research | MCB 492 Senior Thesis
   Graduation with Distinction | Campus Office of Undergraduate Research
   School of MCB Summer Undergraduate Research Fellowships
How to Find a Lab

2. Read about faculty research interests
   - mcb.Illinois.edu, click on “people”

3. Make a list of faculty you want to contact
Faculty Profile

Sayeepriyadarshini "Sayee" Anakk

Assistant Professor of Molecular and Integrative Physiology

Research Topics
Endocrinology, Metabolic Regulation, Regulation of Gene Expression

Education
Bachelor of Pharmacy, Birla Institute of Technology & Sciences, Pilani, India
MSc, Birla Institute of Technology & Sciences, Pilani, India (Biological Sciences)
Ph.D., University of Texas, Graduate School of Biomedical Sciences at Houston (Biochemistry)
Postdoctoral Fellow, Baylor College of Medicine, Houston

Teaching Interests
MCB 402 - Sys & Integrative Physiology

Liver metabolism in normal and diseased state
My laboratory will focus on understanding liver metabolism in normal and diseased state. Our goal is to investigate how bile acids and nuclear receptors maintain metabolic homeostasis and contribute to liver diseases, including cancer using cell-based systems and genetically engineered mouse models.

Liver is a major organ that regulates metabolism of triglycerides, cholesterol, glucose, amino acids, heme, xenobiotics and many more substances. One of the salient features of the liver is to make bile! Bile acids are amphiphilic detergents synthesized in liver to facilitate absorption of dietary lipids. Biliary homeostasis is critical and defects/dysfunctions in this pathway lead to several liver diseases including liver cancer.

Representative Publications


How to Find a Lab

4. Create an online Student Profile

Using the MCB 290 Student Profile Database

If you plan to contact MCB professors during your search for a research position, we recommend that you submit an electronic resume to the MCB 290 Student Profile Database. Your on-line resume may be completed at any time and will remain active in the database for six months. During your search, this allows you to provide uniform information to all MCB professors whose research is of interest to you. Non-MCB faculty will not have access to this database, so you will need to send them your information in a Word document. Questions regarding the MCB 290 Profile Database can be directed to mcb290help@life.illinois.edu.
Student Profile Database

MCB 290 Undergraduate Research Student Application

For detailed information about the application process, please refer to: http://www.mcb.uiuc.edu/undergrad/research.html. Please contact mcb290help@life.uiuc.edu with any questions regarding this application.
Submit Application

MCB 290 Undergraduate Research Student Profile

For detailed information about the lab search process, please refer to:
http://www.mcb.uiuc.edu/undergrad/research.html.

Please contact mcb290help@illinois.edu with any questions regarding completion or use of this profile system. Once submitted, MCB 290 Student Profiles are fact-checked and approved by the MCB Advising Program on a weekly basis. Notification of approval or denial will be received by email. Denials will include instructions for correction and resubmission of the profile. Once approved, your profile will remain active in the database for 6 months.

Completion of the profile is restricted to one hour. It is recommended that you compose your responses for the text boxes in a word processing program, then copy/paste them into the profile.

Campus Experience

Semester in school: 1 [NOT year in school]

Major GPA: [3.51] The major GPA is based on all MCB, IB, CHEM, PHYS and MATH courses taken. Do NOT use your overall GPA. If you have declared your MCB or Biochemistry major, you can obtain your major GPA via a DARS audit at http://www.sasar.uiuc.edu (terms/services.html). First semester students without a GPA should enter 0 for GPA, indicating that you are a Freshman and do not have a GPA to report.

MCB and Supporting Courses & Grades: List all MCB, IB, CHEM, PHYS, STAT and MATH courses taken. Include in Progress courses as IP, Transfer courses as TR and AP credit or courses you have proficiency credit in as PB.

Research Details

Semester Requesting: Summer 2015

Anticipated duration of research (if of semesters): [ ]

Are you considering a senior thesis (MCB Majors: MCB 492; BIOCHEM Majors: BIOC 492) as part of your research experience? [ ] Yes [ ] No [ ] Don’t Know

Have you previously conducted laboratory research? [ ] Yes [ ] No

Describe undergraduate research or relevant work experience already acquired:

MCC
School of Molecular & Cellular Biology
COLLEGE OF LIBERAL ARTS & SCIENCES

ILLINOIS
Instructional Program
Finding your Major GPA

- Run a Degree Audit for your major
- Scroll down to find “Major GPA Requirement”
Student Profile Database

- Profile information is checked for accuracy by MCB Advising, typically takes ~1 week for processing.
- Upon approval, you will receive an email with a link to your profile that you can send to MCB faculty.
- Profile is only active for 6 months, then must update
- Only available to MCB/BIOC students
- Only viewable by MCB/BIOC faculty
How to Find a Lab

5. Contact Faculty
   ✓ Send introductory email (88% prefer this method)
   ✓ Be professional (use greeting and signature)
   ✓ Be specific to each lab
   ✓ Be patient and persistent
     • May have to send a follow up email
     • Wait at least 5 days between emails
   ✓ Work in batches, contact 5 or 6 labs at a time
Faculty Thoughts

• “prefer students in first or second year, so we can have them around at least one more year after spending a year training them…”

• “They should not think of this as a job where they punch in at a certain time and leave at a specific time. They need to plan to stay as long as the experiment requires.”

• “I don’t answer emails that say, “I’m really interested in what you do…” without showing they really know.”
Faculty Thoughts

- “Nobody should be doing research for just a semester.”

- “If the student’s email is not specifically addressed to me, I delete it without further consideration.”

- “We require minimum 12 hrs a week in the lab, preferably with 3 to 4 hr blocks of time.”
Faculty Thoughts

• “Students with heavy coursework and/or many extracurricular activities are discouraged to apply.”
• “GPA is not very important.”
• “Do not wait until 2 weeks into the semester to contact me.”
• “Research positions are few and competitive. Do not be disappointed if you are not selected for a particular lab.” – Students are not guaranteed a lab position
Interview Tips

• Dress nicely (business casual)
• Come prepared to talk generally about lab projects
• Ask about expectations!!!!
  ➢ When/how often are you expected to be in lab?
  ➢ How will your grade be determined?
• Be honest about your availability
  ➢ Academics should come first!
How to Enroll in MCB 290

• Fill out appropriate form (MCB or Non-MCB lab)
• Have form signed by faculty (not grad student or post-doc)
• Bring to room 127 Burrill Hall for processing
• Pay close attention to deadlines!

Fall and Spring Semester Forms
- MCB 290 Request Form for Research Experience in MCB labs (PDF)
- MCB 290 Request Form for Research Experience in NON-MCB Labs (PDF)
- MCB 492 Request Form for Senior Thesis in MCB or Non-MCB Labs (PDF)

Note: All forms must be processed in room 127 Burrill Hall. The deadline to add MCB 290 and MCB 492 is the 10th day of class during fall and spring and 7th day of class during summer. Students may not be allowed to add either of these courses after this deadline.
MCB 290 Deadlines

- 10\textsuperscript{th} day of fall/spring semester at 5:00 PM
- 7\textsuperscript{th} day of summer session II at 5:00 PM
- Must renew every semester by the deadline
  - An online renewal form is available on our web site.
## Non-MCB Labs to Consider

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<tr>
<th>Integrative Biology</th>
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<td>Psychology</td>
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<td>Beckman Institute</td>
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<td>Institute for Genomic Biology (IGB)</td>
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Non-MCB Lab Enrollment

• Must sign up under Melissa Michael’s section of MCB 290
• Need approval of project
  • Short proposal of the work YOU will be doing
  • No Journal reviews
• Strict deadlines!

Late Adds
Know Your Rights

• “It is the policy of the University not to engage in discrimination or harassment against any person because of race, color, religion, sex, pregnancy, disability, national origin, citizenship status, ancestry, age, order of protection status, genetic information, marital status, sexual orientation including gender identity, arrest record status, unfavorable discharge from the military, or status as a protected veteran.”

• If you feel your rights have been violated, please consult the Office of the Dean of Students or reach out to your Academic Advisor for help finding resources.
Faculty Perspective

Dr. Catherine Christian
Assistant Professor of Molecular and Integrative Physiology

Research Interests

• Neuroscience, Physiology and Endocrinology
• Neural mechanisms linking epilepsy and comorbid reproductive endocrine disorders
• Ion Channels and Synaptic Transmission
Mathias Morales, mmoral41@illinois.edu
  • Senior, MCB
  • Dr. Collin Kieffer’s lab, Microbiology
  • 4th semester of research in this lab (10th overall), working on senior thesis

Manisha Reddy, Inagan2@illinois.edu
  • Junior, MCB
  • Dr. Catherine Christian’s lab, Molecular and Integrative Physiology
  • 4th semester of research (+ 1 summer)

Aaron Gephart, aarontg2@illinois.edu
  • Junior, MCB
  • Dr. Jacob Sosnoff’s lab in Kinesiology
  • 4th semester of research
Graduation with Distinction

Eligibility for MCB 492 and/or distinction:

• Spend a minimum of 2 semesters in the same lab before final semester
• Earn a minimum of 2 credit hours each semester in that same lab
• Have support of faculty – they will have to write a letter of support
• Present Poster within the academic year prior to graduation
• For high/highest distinction consideration, register for MCB 492 in final semester of degree program
• For distinction consideration, register for MCB 290 in final semester of degree program

http://mcb.illinois.edu/undergrad/opportunities/distinction/
Take Home Points

• Earn course credit and a grade for research experience
• Start early – Be aware of deadlines
• Understand faculty expectations
• Be professional and responsible
• Have fun and learn as much as you can
Questions

Tina Knox
tmknox@illinois.edu
mcb.Illinois.edu/undergrad/opportunities/research/